

Membrane and Liquid Crystal Nanostructures (MELINA)

September 4 – 5, 2016,

Sts. Konstantin & Helena Resort, Varna, Bulgaria

SUNDAY, 4TH SEPTEMBER, 2016

9:00 – 9:10

OPENING

**Academician Alexander G. Petrov, MELINA Chairman,
INERA Project Coordinator**

SESSION 1: MEMBRANE BIOPHYSICS

Part I.

Chair: Alexander G. Petrov

9:10 – 9:50

Thomas Rainer Heimburg

Mechano-capacitive properties of polarized membranes

9:50 – 10:30

Margarita Stavkova

Membranes on deformable substrates - biological insights and technological applications

10:30 – 10:50

Ksenia Chekashkina, P.I. Kuzmin, V.A. Frolov, P.V. Bashkirov

The regulation of membrane bending rigidity by components with high intrinsic curvature

10:50 – 11:20

COFFEE BREAK

Part II.

Chair: Isak Bivas

11:20 – 12:00

Aleš Iglič, L. Mesarec, M. Fošnarič, S. Penič, S. Kralj, W. Gózdź, V. Kralj-Iglič

On the mechanisms of membrane tubulation

12:00 – 12:20

Yury Ermakov

Boundary potential of lipid bilayers: methods and interpretations

12:20 – 12:40

Anna Gavrilchik, V.S. Sokolov

Investigation of the photodynamic processes on the surface of bilayer lipid membrane by method of intramembrane field compensation (IFC)

13:00 – 14:00

LUNCH

SUNDAY, 4TH SEPTEMBER, 2016

SESSION 1: MEMBRANE BIOPHYSICS

Part III.

Chair: Thomas Heimburg

14:00 – 14:40

Galva Staneva, R. Georgieva, Kr. Mircheva, V. Vitkova, K. Balashev, T. Ivanova, C. Tessier, K. Koumanov, P. Nuss, A. Momchilova,

Phospholipase A₂ induced remodeling processes on liquid-

ordered/liquid-disordered bilayers mimicking cellular plasma membranes

14:40 – 15:00 **Oleg Batishchev**, E.V. Shtykova, L.A. Shilova, L.A. Baratova, N.V. Fedorova, T.R. Galimzyanov
Structural analysis of self-assembly of Influenza A virus protein scaffold

15:00 – 15:20 **Sergey Akimov**, V.V. Aleskandrova, T.R. Galimzyanov
Mechanism of lipidic pore formation by antimicrobial peptides

15:20 – 15:50 **COFFEE BREAK**

SESSION 2: SOFT AND LIVING MATTER PHYSICS

Chair: Victoria Vitkova

15:50 – 16:30 **Alexander G. Petrov**
Bioflexoelectricity and biohelielectricity

16:30 – 16:50 **Isak Bivas**, Nikolay Tonchev
Statistical Mechanics of Fluctuating Vesicle

16:50 – 17:10 **Hassan Chamati**, R. Trobec, J. I. Pavlič
Structural Properties of Pre-formed DPPC and DSPC Lipid Vesicles: A Coarse Grain Molecular Dynamics

17:30 – 18:30 **POSTER SESSION**

20:00 – 21:00 **DINNER**

MONDAY, 5TH SEPTEMBER, 2016

SESSION 3: NANOCOMPOSITES AND POLYMERS

Part I.

Chair: Minko Petrov

9:30 – 10:10 **Paul Montgomery**
Optical nanoscopy characterization of nanofilms

10:10 – 10:50 **Oliver Williams** S. Mandal, E.L.H. Thomas, G. Klemencic, L. Gines, J. Werrell, S. Giblin
Nanostructured diamond for Quantum applications

10:50 – 11:20 **COFFEE BREAK**

Part II.

Chair: Nikolay Tonchev

11:20 – 12:00 **Michele Giocondo**, T. Ritacco, L. Ricciardi, M. La Deda
Additive Manufacturing of metallic nanoparticles structures by 2-photons Direct Laser Writing

12:00 – 12:40 **Marcus Cook**, L. Peeva, D. Mitev, E. Radeva, A. Livingston
Chemical Vapour Deposition for the fabrication/modification of nanofiltration membranes

12:40 – 13:00 **Kostadinka Gesheva**, T. Ivanova, S. Boyadjiev
Chromogenic Smart Nanocomposites as Functional Surfaces in

Energy Efficient Devices

13:00 – 14:00 **LUNCH**

MONDAY, 5TH SEPTEMBER, 2016

SESSION 3: NANOCOMPOSITES AND POLYMERS

Part III.

Chair: Galya Staneva

- 14:00 – 14:40** **Samo Kralj**, P. Kuryoz, S. Rzoska
Supercooled Soft Nanocomposites
- 14:40 – 15:00** **N. Hristova-Avakumova**, B. Nikolova-Mladenova, K. Yoncheva,
Vera Hadjimitova,
*Novel Hydrazones – Antioxidant Potential and Stabilization via
Polysaccharide Particle*
- 15:00 – 15:20** **Dimitar Mitev**, D. Peshev, G. Peev, L. Peeva
*Depot effect of bioactive components in experimental membrane
filtrations*
- 15:20 – 15:40** **CLOSING**
- 20:00 – 23:00** **FAREWELL PARTY**

POSTER SESSION
SUNDAY, 4TH SEPTEMBER, 2016, 17:30-18:30 h

- P - 1** Hari Krishna Koduru, M. Iliev, Y. Marinov, D. Karashanova, N. Scaramuzza:
Synergetic effect of TiO₂ nanofillers and NaIO₄ additives on conductivity and dielectric properties of PEO/PVP nanocomposite electrolytes for electrochemical cell applications
- P - 2** Hari Krishna Koduru:
Electro-optical and dielectric characterization of nano-PDLC films
- P - 3** Ch. Angelov:
Advanced atmospheric investigations at basic environmental observatory "Moussala"
- P - 4** G. B. Hadjichristov, Y. G. Marinov:
Photoresponsive azo-doped Aerosil/7CB nematic liquid-crystalline nanocomposite films: the role of polyimide alignment layers of the films
- P - 5** K. Antonova, C. Meyer, I. Dozov:
Double helices in chiral smectics under electric field
- P - 6** A. Vasev, M. Iliev, A. Stoyanova-Ivanova, V. Mikli, M. Marinov, Y. Marinov:
Electrochemical impedance spectroscopy of YBCO ceramics
- P - 7** Y. G. Marinov, M. P. Marinov, G. B. Hadjichristov, S. K. Prasad, L. Marino, N. Scaramuzza:
Dielectric study of azo-doped aerosil/7CB filled nematic upon UV light
- P - 8** V. Vitkova, G. Coupier, T. Podgorski:
Rheological properties of erythrocyte suspensions
- P - 9** D. Mitkova, K. Antonova, R. Dimova, V. Vitkova:
Sugar effect on lipid membranes measured by flicker spectroscopy, electrodeformation and electroporation of lipid vesicles
- P - 10** K. Zhelyazkova, M. Petrov, B. Katranchev, H. Naradikian, G. Dyankov:
Surface plasmon for exploration the temperature dependence of hybrid cholesteric liquid crystal's pitch
- P - 11** E. Zachanowicz, A. Zięcina, M. Małecka, K. Marycz, M. Marędziak, B. Poźniak, M. Nowakowska, M. Tikhomirov, J. Miller, R.J. Wiglusz, R. Pązik, K. Rogacki:
Cytotoxic effects of Co_{1-x}Mn_xFe₂O₄ ferrite nanoparticles synthesized under non-hydrolytic conditions (Bradley's reaction) - in vitro
- P - 12** H. Naradikian, M. Petrov, B. Katranchev, T. Milenov, S. Tinchev:
Surface characterization and orientation interaction between diamond-like carbon layer structure and dimeric liquid crystals
- P - 13** G. Exner, Y. G. Marinov, E. Perez:
Investigation of the structure and thermal behaviour of polymer liquid crystal/single wall carbon nanotubes nanocomposites
- P - 14** M. Petrov, B. Katranchev, P. Rafailov:
The unique physical properties of the hydrogen bonded in dimers liquid crystals
- P - 15** S. Boyadjiev, B. Manduca, O. Kéri, P. Bárdos, K. A. Gesheva, I. M. Szilágyi:
Transition metal oxides core-shell nanocomposites prepared by combination of various techniques with atomic layer deposition for photocatalytic, electrochromic and gas sensing applications